

CLAIMS

1. Process for the continuous manufacture of an austenitic stainless steel strip (3) having a dull surface appearance with a brightness of less than 30 and an arithmetic mean roughness Ra of greater than 0.12 μm , of the annealed/pickled type, comprising the steps consisting in:
 - subjecting a cold-rolled austenitic stainless steel strip (3) to a heat treatment in a bright annealing furnace (1) inside which a flushing gas chosen from inert or reducing gases, having a dew point above -15°C circulates, said flushing gas optionally comprising less than 1% oxygen by volume or less than 1% air by volume, said heat treatment comprising a heating phase at a heating rate V1, a soak phase at a temperature T for a soak time M, followed by a cooling phase at a cooling rate V2, in order to obtain a strip (3) covered with an oxide layer; and
 - pickling the strip (3) having undergone the heat treatment, using an acid pickling solution suitable for completely removing said oxide layer according to its thickness and its nature.
2. Process according to Claim 1, characterized in that the dew point of said flushing gas is between -10 and 30°C .
3. Process according to Claim 2, characterized in that the dew point is between -5 and 10°C .
4. Process according to any one of Claims 1 to 3, characterized in that said flushing gas is chosen from argon, hydrogen, nitrogen and mixtures thereof.
5. Process according to any one of Claims 1 to 4, characterized in that the heat treatment of the strip (3) is carried out at a rate V1 of greater than 10°C/s , a soak temperature T between 1050 and 1150°C , a soak time M between 1 s and 120 s and said strip (3) is cooled at a rate V2 of greater than $10^{\circ}/\text{s}$ down to a temperature of 200°C or below.
6. Process according to any one of Claims 1 to 5, characterized in that the heat treatment of the strip (3) is carried out using an induction heating device.

7. Process according to any one of Claims 1 to 5, characterized in that the heat treatment of the strip (3) is carried out using a resistance heating device.
8. Process according to any one of Claims 1 to 7, characterized in that the pickling solution is chosen from aqueous solutions comprising nitric acid, hydrofluoric acid and/or sulphuric acid.
9. Process according to Claim 8, characterized in that the pickling solution is chosen from aqueous solutions comprising hydrofluoric acid and nitric acid, and aqueous solutions comprising hydrofluoric acid and ferric ions Fe^{3+} .
10. Process according to Claim 9, characterized in that the pickling solution is an aqueous solution containing 10 to 80 g/l hydrofluoric acid and 60 to 140 g/l nitric acid.
11. Process according to Claim 10, characterized in that the pickling solution is an aqueous solution containing 30 to 50 g/l hydrofluoric acid and 80 to 120 g/l nitric acid.
12. Process according to Claim 9, characterized in that the pickling solution is an aqueous solution containing 5 to 100 g/l hydrofluoric acid and 1 to 150 g/l ferric ions.
13. Process according to Claim 12, characterized in that the pickling solution is an aqueous solution containing 30 to 80 g/l hydrofluoric acid and 30 to 50 g/l ferric ions.
14. Process according to any one of Claims 1 to 13, characterized in that, in order to pickle the austenitic stainless steel strip (3), said strip is sprayed with the pickling solution.
15. Process according to any one of Claims 1 to 13, characterized in that, in order to pickle the austenitic stainless steel strip (3), said strip (3) is immersed in a pickling bath containing said pickling solution.
16. Process according to any one of Claims 1 to 15, characterized in that the temperature of the pickling solution is between 20 and 100°C.
17. Process according to Claim 16, characterized in that the temperature of the pickling solution is between 50 and 80°C.

18. Process according to any one of Claims 1 to 17, characterized in that the time during which the strip is in contact with the pickling solution is between 10 s and 2 min.